

"The Original Online ST Magazine"

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> The Editor's Podiumâ ¢

Price Club, ...What is it? Who are they? Are they only west of the Mississippi? Only after realizing that the Price Club's carrying STs for sale is a factory dump, can we say well it's ok, at least it will put the Atari computer on more desks. One thing though, as we are told, the Price Club is calling it an outrageous name. "THE ST GAME MACHINE" Why would they do this? Read more about this matter elsewhere in this issue.

Atari is embarking on the second phase of it's aggressive return to the US market. We, the userbase will be enjoying the delight of seeing the computer image of Atari greatly enhanced. Over the next few months, we will be witnessing the best campaign ever put on by Atari.

Yes, we at STReport are "up" on Atari and there are many reasons why we are, for example; in the last 60 days we have seen more third party goodies for the ST than we have in the last 10 months. Of course, there are those who will say, I want to wait and see.. By all means please wait and see, just don't get crazy and go to another brand.

Being well aware of the amount of time that has gone by without any major advances. We can sympathize with folks who are skeptical, but the time has come for Atari to either do it or get off the pot. Atari is hard at work getting it done at this time and anyone who would leave now is, at this point in time, being overly hasty.

On another matter, we certainly hope the manufacturers and publishers learn an early and quick lesson from the disenchantment of Dealers being heard 'round the country. The Comdex people (Interface Group) learned it in a hurry! As did many of the more experienced exhibitors on the show route. The main gripe heard is; "Why is the factory we BUY from selling the goods at these shows for LESS than we pay???? These dealers are VERY RIGHT in making this question apparent and up front. Professionalism comes in many forms, one of which is to always stand behind your dealers.

How simple it would be for the Factories and Publishers to provide the product to the show's visitors through the nearest dealers to that show. How? Easy! Setup and stock a booth, sell the merchandise, and remit to the local dealers all dollars received in excess of the dealer cost of the product(s). Or, simply allow the dealer of your choice to man the stocked booth and earn the profits. Folks, something must be done, the dealers are not happy with seeing the very source of their products busy lowballing and slashing away at prices. (Regardless of whether the discounted products are rebuilds, pullouts or repacks!) Offer these to your dealers first! This occurrence at the most recent shows is turning off dealers by the dozens. A word to the wise....

Thanks again for your support,

Ralph.....

"ATARI IS BACK!"

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> CPU REPORTâ €
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Issue # 31

by Michael Arthur

Remember When....

In 1982, IBM charged \$5000.00 for an IBM PC with a 4.77 MHZ 8088, 64K of RAM, two floppy disk drives, with their Monochrome Display Adapter as the official display standard, and when Hercules Computer Technology designed the Hercules graphics card, which became the de facto standard for several years?

CPU INSIGHTSâ €
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The Intel 80486 and 80860 Chips: A RISC and a Safe Step

Part I

Intel has recently introduced two signs of its vision of the microcomputing future. One, the 80486 chip, is part of Intel's current dynasty of microprocessors, the latest in a line which goes back to the beginning of the microcomputer industry. The other, the 80860 chip, is the latest entry in Reduced Instruction Set Computer (RISC) chips, a field which, while holding much potential for the industry, is becoming increasingly crowded for its currently small market. In order to understand the impact they will have on the industry, and how they will affect their respective markets, it is necessary to know the aspects of their capabilities....

Amalgamams, the Future of Computing, and the 80860 Chip

Formerly known during development as the N-10, the Intel 80860 chip is a 64-bit RISC chip with a 1 million transistor design. It combines a RISC integer core, capable of performing 85,000 Dhrystones a second at 40

MHZ, with a floating point unit, capable of executing 80 peak MFLOPS, or million floating point operations a second. This unit is made up of separate adder and multiplier units. All three units are separate, and can operate simultaneously. However, the 80860 also has special, "Dual operation" instructions that can use the adder and multiplier units in parallel, as if they were one unit. Since all 80860 operations take one clock to complete, this means the 80860 can perform three operations per clock: 2 floating point math operations and 1 integer operation. But since an 80860 instruction may take several operations to complete, this may not be so much of a benefit. To solve this problem, the 80860 is designed to perform both scalar and pipelining operations. Interestingly, the 80860 is modeled after Cray's vector processing supercomputers....

A scalar is a mathematical term which can be expressed as a single number. A scalar processor, then, can work on a scalar, or a single number, at a time. Most microprocessors, including the 68000 and most RISC chips, are scalar units, and define an instruction as a series of scalar numbers, which are computed one at a time, until it is finished computing each scalar of the instruction.

In comparison, a vector is a mathematical term which is expressed with two or more numbers. This means that, while scalar A is made up of the number X, vector A is made up of numbers X, Y, and Z. In principle, a vector is more versatile than a scalar, as it can describe instructions that are made up of several numbers.

Since the advantage of using vectors would be lost if the processor had to perform scalar-type operations on the vector, a vector processor uses pipelining to compute the entire vector. In pipelining, the CPU is like an assembly line. Vector A is sent through the assembly line, and the CPU breaks it down into its component numbers X, Y, and Z. During Clock 1 the CPU takes number X and performs 1 operation on it. During Clock 2, instead of performing another operation on number X, as a scalar processor would do, the CPU performs an operation on number Y. Therefore, a pipelining CPU performs an operation on each of the instruction's components, obtaining a result each clock cycle. This results in a VAST speed increase over scalar processors, which can only perform an operation on a single instruction component at a time.

However, the main problem with pipelining (and the reason the 80860 supports scalar processing) is that the assembly line performs the SAME EXACT operation on every number of the vector. This means that if, in Vector A, Number X required multiplication of certain values, while the Number Y required the adding of certain values, Vector A could NOT be fully computed by a pipelining processor. Since some programs would have this problem, the programmer would have two options: Perform some VERY tricky programming to squeeze the operation into the proper pipeline, or use a vectorizing compiler, which automatically ensures that each vector can be properly computed by a pipelining CPU. However, making vectorizing compilers is VERY difficult....

To solve this dilemma, the 80860 supports both scalar and pipelining operations, and ensures that pipelining can only be used with floating point instructions, so the programmer can design the application for optimum performance. Oddly enough, the 80860 uses what could be termed as a double instruction set, since it has both scalar and pipelining equivalents of any given instruction. For example, the 80860 would have a floating point add instruction, called FP.ADD, made for scalar computation while it would have another floating point operation, called PFP.ADD, which, while performing the SAME EXACT operation as FP.ADD, is made

specifically for pipelining computation. This can make for a rather awkward process....

The 80860 has a virtual memory address space of 4 Gigabytes. In order to implement memory management for this, the paging unit uses a TLB, or Translation Lookahead Buffer, to segment the virtual memory addresses into page frames. The 80860 also has an instruction cache of 4Kbytes, and a data cache of 8Kbytes. The 80860's Cache Control Unit uses the TLB to determine which page frames should be cached. However, the 80860's caching method isn't that efficient or complete, as it doesn't implement write-through caching, which allows the cache to immediately upgrade memory. Meaning that its caching operations are much slower than those seen on other microprocessors.

The 80860 also has built-in graphics coprocessor, which can handle 8-bit, 16-bit, and 32-bit pixels, and processes 64-bits of pixel data at a time. The 80860 also has built-in Gouraud and Phong shading, and uses the Z-Buffer algorithm for color intensity shading and hidden surface elimination, which is necessary for true color rendering of 3-D solid objects.

Currently, Intel only makes a 33 MHZ version of the 80860, able to execute up to 100 Million Operations Per Second, for \$750.00 in bulk quantities. However, a 40 MHZ 80860 will be out before the First Quarter of 1990. Also, Intel is porting AT&T Unix to the 80860, so as to aim it at the workstation market. But, at least at first, the 80860 will be marketed as a graphics coprocessor for its 80x86 line of processors. IBM has already shown a MicroChannel busmaster card using the 80860 as a graphics coprocessor, and OS/2 is said to be able to use the 80860 for this purpose. Also, both Scalar and Vector Math libraries are available for OS/2 and Unix.

However, the 80860 does have serious flaws, which has limited its acceptance in the industry. Its instruction set is not as complete as other RISC processors, and the 80860 has other inadequacies, such as its incomplete cache implementation, which may limit its versatility. Oddly enough, even though they claim the 80860 can be used as a regular microprocessor, Intel is now developing the N-11, an updated version of the 80860 which will have the full versatility in other RISC processors, as well as correcting the 80860's flaws.

But the 80860 chip is still VERY good in itself. It is one of the fastest RISC chips available, and has many features that its competitors lack. Also, many RISC processors, such as Motorola's 88000, and the SPARC architecture, are actually chipsets, with many of the processor's extra features on different chips. In fact, the SPARC itself consists of six chips handling the SPARC's DMA, Memory Management, and CPU Caches. The 80860, though, has all of its features in one chip, resulting in increased system speed, and making the design process for 80860-based products MUCH quicker. Given the 80860's innovations, it would be surprising if it didn't have any flaws, and even more surprising if it didn't substantially affect the RISC computer industry....

In Part I of this article, CPU Report described the 80860 chip, showing its many innovations. In Part II of this article, CPU Report will describe the Intel 80486 chip, showing how it will both revolutionize the IBM World, and affect the microcomputer industry....

But ponder, if you will, this question:

1) Will parallel processing be more dominant than RISC technology in the future of the computer industry?

CPU ARTICLE UPDATEâ €

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Expanded Expansion, Plug-n-Play, and a Desktop CompuStar

CPU Report Issue 18 featured the Wells American CompuStar, a revolutionary IBM Compatible System based on the concept of modular hardware. Since then Wells American has introduced a desktop version of the CompuStar, called the CompuStar II. However, since it is different in some VERY important ways from the original CompuStar, but is based on the same system, this revised article describes the CompuStar line's features, while showing how the CompuStar II differs from the first CompuStar....

When deciding to buy an IBM Compatible system nowadays, PC Users have a LOT of choices to make. First, one could either get a system using the standard (but dated and obsolete) PC AT Expansion Bus, or use the newer IBM MicroChannel Expansion Bus, which has not yet become a solid standard in the IBM world. Then, one must decide whether the system will use the 8086, 80286, or 80386 chip, and whether it will run at 8 MHZ, 16 MHZ, 20 MHZ, 25 MHZ, or up to 33 MHZ. And this doesn't even include whether to use VGA, EGA, or CGA graphics....

Although many of these choices are based on economics, the most difficult aspect of this decision is that once a system is purchased, one cannot upgrade to a more powerful system without selling the old computer and looking for a new one, since many PC Accelerator boards are not completely IBM compatible, and most PC Clone makers will not allow users to trade in their old computers so as to upgrade to the new system. But a solution to this dilemma has come from Wells American Corp., a company who became known in the 1970's as Intertec Data Systems, the makers of the Superbrain CP/M computer....

Dubbed a "multi-processor, expandable bus microcomputer", the CompuStar is a new type of IBM Clone which uses a radically different, modular design to allow a PC User to literally custom-configure their own IBM system.

The CompuStar base system is primarily made up of an aluminum case, and a Wells American I/O Module, having 2 serial ports, 1 parallel port, mouse/keyboard ports, and a disk drive controller. The Base System is the basis of a CompuStar system, to which the other options are added through the use of Modules. The first CompuStar comes with a VGA chip onboard, which lets it support IBM VGA, EGA, CGA, and Hercules graphics, while the CompuStar II doesn't have its display circuitry in its motherboard, but requires a video display adapter card. Since Wells American sells some, this isn't a problem. Also, the original CompuStar's Base System doesn't come with any Expansion Slots, while the CompuStar II's motherboard has Five PC AT Expansion Slots.

The original CompuStar allowed you to install two Expansion Bus Modules (a Primary Module, and a Secondary Unit) in the system internally, as it was in a Tower Configuration. Since the CompuStar II is a desktop system, the number of expansion slots can only be increased through an external Bus Expansion Chassis, which has 5 additional slots. However, the original, or "Tower" CompuStar, also supported a PS/2 Adapter Module, allowing it to use MCA, or IBM MicroChannel expansion slots. This Desktop CompuStar, though, only supports PC AT Slots. Meaning that the CompuStar II is meant more as a traditional PC AT Clone system, while the Tower CompuStar is made for the "Power PC User" who needs both PC AT and MicroChannel Slots, and the versatility that a Tower System allows....

After a PC User has chosen their system's Expansion Bus options, the next choice is in microprocessors. To this end, the CompuStar uses what is called a CPU Module, which contains the main processor, a socket for a math coprocessor, and 8 sockets for CompuStar Memory Modules, which are from 512K to 2 Megs in size. Wells American currently makes CPU Modules using a 20 MHZ 80286 Chip, and versions using the 80386 chip at speeds up to 33 MHZ. Oddly enough, Wells American doesn't make an 8086 CPU Module for the CompuStar. Also, to enhance the flexibility of this method, CompuStar users can trade-in the CPU Module they currently own for a more powerful one, and (if they have owned the module for less than one year) use the old module's list price as a credit towards the purchase of the new module. This means that the upgrade path for a CompuStar User is not only easier than with other computer owners, but could be a lot less expensive in the long run....

Wells American also sells a wide array of accessories for the CompuStar line, including 3 1/2 and 5 1/4 inch disk drives, tape backup systems, and a variety of Maxtor hard drives, including a 1 Gigabyte Magneto-Optical tape drive. Of course, most PC Users would tend to wonder if the CompuStar line's price corresponds to its flexibility. Here are Wells American's list prices:

- CompuStar Base System: \$1500.00
- CompuStar II Base System: \$750.00

Expansion Bus Modules =====

CompuStar I:

- PC AT Expansion Bus Module (Primary Unit): \$200.00
- PC AT Expansion Bus Module (Secondary Unit): \$175.00
- MicroChannel Expansion Bus Module (Primary Unit): \$295.00
- MicroChannel Expansion Bus Module (Secondary Unit): \$250.00
- MicroChannel Adapter Module: \$995.00

CompuStar II:

- Bus Expansion Chassis (5 extra PC AT Slots): \$400.00

CompuStar CPU Modules =====

CompuStar II:

- 20 MHZ 80286 CPU Module:	\$700.00
- 16 MHZ 80386SX CPU Module:	\$900.00
- 20 MHZ 80386 CPU Module:	\$1500.00
- 25 MHZ 80386 CPU Module:	\$3100.00
- 33 MHZ 80386 CPU Module (Standard 32K Cache):	\$3500.00
- 33/36 MHZ 80386 CPU Module (256K SRAM SuperCache):	\$5000.00

Mass Storage Options

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- 42 Megabyte Hard Drive:	\$595.00
- 104 Meg Hard Drive:	\$1100.00
- 208 Meg Hard Drive:	\$1700.00

CompuStar I Specific:

- 320 Megabyte Hard Drive:	\$3000.00
- 650 Meg Hard Drive:	\$4400.00
- 800 Meg WORM (Write Once/Read Many) Drive:	\$3200.00
- 1 Gigabyte Magneto-Optical Cartridge Drive:	\$6000.00

CompuStar Memory Modules

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- 512K DRAM Module (80 ns):	\$170.00
- 1 Megabyte DRAM Module (80 ns):	\$320.00
- 1 Meg DRAM Module (60 ns):	\$450.00
- 2 Meg DRAM Module (80 ns):	\$525.00
- 2 Meg DRAM Module (60 ns):	\$750.00

CompuStar II Display Adapters

CompuStar II:

- VGA Display Adapter	\$300.00
- Enhanced VGA Display Adapter	\$425.00

If you want to get more information on Wells American's CompuStar line of products, they can be reached at 1-803-796-7800....

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Cupertino, CA

Apple recently started selling its 16.4 share of stock Adobe Systems, the maker of Postscript. Since Apple's System/Finder 7.0 will have Outline Fonts, as well as a Layout Manager and a new print architecture, enabling typographical quality text layout/printing, Apple feels it can compete with Postscript. Also, Apple is developing a clone of Adobe's Postscript interpreter for its printers, in order to erase Adobe completely from its product line.

Even though 33 percent of Adobe's revenues are Macintosh-related, many companies are starting to support Postscript. Also, DEC, IBM, and even the OSF are reportedly developing systems based on Display Postscript.

Since Apple indicated such a move in 1988 by refusing to support Display Postscript for the Mac, and given that Apple formed a new software company, Claris, in part to compete with Microsoft in the Mac software market, it seems that Apple is trying to make itself more independent (and more profitable) by centralizing some of the major Macintosh standards....

Mountain View, CA

Sun Microsystems recently announced that it could report its first quarterly loss since 1986. Even though this was supposedly because of manufacturing problems, Sun has begun austerity measures to cut back on ALL expenses.

Santa Clara, CA

Intel has recently introduced the first chipset to be compatible with the EISA expansion bus, or Extended Industry Standard Architecture. The EISA Bus, which was designed by the "Gang of Nine", a group of 9 major computer makers including Compaq, Tandy, and Zenith, is a 32-bit bus architecture which is made to provide capabilities similar to IBM's MicroChannel bus, while maintaining compatibility to the standard IBM AT Expansion Bus.

The "Gang of Nine" plans to use this chipset to produce EISA-based PCs by Winter Comdex, and more than 200 companies are developing EISA-based expansion boards and computers. Meaning that the EISA spec will soon be a strong competitor to the MicroChannel standard....

Cambridge, MA

The Open Software Foundation, as part of their efforts to develop a new Unix standard, has recently announced the availability of OSF Motif, their new Graphical User Interface for Unix. Based on X/Windows, eleven major Unix companies, including DEC, IBM, Hewlett-Packard, Oracle, and the Santa Cruz Operation (who previously designed Microsoft Xenix) will be using OSF/Motif as their standard User Interface. ANSI C Source Code for OSF Motif Costs \$1000.00, while binary code licensees are around \$40.00.

OSF/Motif is an XWindows-based Graphical Interface

with the look of Presentation Manager's User Interface, Hewlett-Packard's window management style, and DEC's Interface Toolkit (XUI), also used in the DECwindows environment. Interestingly enough, since OSF/Motif has the Presentation Manager/Windows user interface style, if Apple wins its "look and feel" lawsuit against Microsoft Windows, then OSF/Motif, at least in its present form....

Sydney, Australia Microsoft will be designing the "Microsoft Institute of
----- Advanced Software Technology" here, which will be based
on Microsoft University, in Redmond, Washington. It
will help Australian developers learn the intricacies
of Microsoft's systems software, including Windows and
OS/2 programming....

> RED LIGHTNING STR Reviewâ € Red Lightning, Part II "Top War Game"
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RED LIGHTNING REVISITED
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by Ron Brunk

Two weeks ago, I wrote a quick overview of Red Lightning, stating that it was too complex to write about with only a few days experience. I'm glad I did that because I've found it to be so detailed and realistic, it approaches the realm of simulation. For those who missed the first article, RL simulates WWII in north-central Europe as the Soviets begin rolling into West Germany. You can play as the Nato or (Warsaw) Pact Commander against either a human or computer opponent. Games can consist of 20 or 60 half day turns. Victory is determined by difference in morale levels of the two alliances which in turn is a factor of the morale of the participating countries.

The complexity of the game ranges from very easy (just move armies) to extremely detailed, depending on which of the following options you allow the computer to control: North Atlantic/special ops, air campaign, and sub-divisional deployments. The game can also be set to favor one side or the other depending on these options: chemical weapons (yes/no), season, Pact competence, and limited intelligence. All of these options will be discussed later.

The game begins as the Pact alliance invades Norway and starts moving into West Germany. Depending on the scenario chosen, the Nato alliance will have zero, partial, or full mobilization in effect. The first few

rounds will be the longest of the game as the Nato player (and to a lesser extent the Pact player) scrambles to assemble his forces into a coherent defense. Since range artillery support and stacking of units is only available between units within each individual corps, it is vital that forces be grouped accordingly. On the other hand it is also important to react quickly and establish the front as far east as possible.

The default screen is a tactical map (~4% of the campaign map) detailing a richly colored terrain with options to show possession (each hex marked with a colored dot) and to hide units to reveal just the terrain. The map scrolls smoothly by clicking on triangles in the upper right side of the screen. The "overview" displays a strategic map of the entire campaign over 1/4 of the screen with units (and areas of possession if that option is on) marked in red and blue. Clicking on a point on the overview brings up the tactical map centered on that point. The "supply report" is the same size as the overview and displays which areas are currently connected to supply routes. This helps show how to cut off enemy routes, preventing them from recovering readiness points during the resupply phase at the end of each turn. Clicking on a hex on the tactical map displays general information including terrain type, unit name(s), movement points remaining, and maneuvers scheduled if friendly, or just terrain type and type of unit(s) if enemy occupied. By selecting "full hex info" mode you can determine detailed info on a friendly unit. Choosing a unit displays the sub-units (i.e. brigades of a division) including the readiness (up to 100%), deployment status (forward, reserve, rest) and equipment (how many of each weapon). Also displayed at the bottom is total artillery strength (weapons with lethality >10) of the unit, as well as the mobile and static (dug-in) values for non-artillery strength and survivability. Displayed strengths include modifications due to terrain, readiness, and deployment status (which can be modified if sub-divisional deployments option is "on"). Units with a high deployment status (forward) are stronger in attack and defense, but recover readiness points slower.

A series of informational subscreens available from drop down menus will display the following:

Strategic report- lists hexes held, North atlantic campaign status, and significant events.

Political report- details morale levels and political alignments of countries (Nato, Pact, Neutral).

Weather report- Current and forecasted for 12, 24, and 36 hours (90, 80, and 70% accurate).

Air operations are conducted via another drop down menu which brings up a screen which displays the various aircraft types. Clicking on a specific type will highlight it and display combat characteristics along with a numerical rating (1-5) of how well it is suited to perform the following types of missions:

Air superiority- Attack enemy aircraft.

Strike- Attack ground targets.

Close air support- Attack enemy troops during battles, included in artillery phase.

Strategic recce- Gather intelligence in the enemy's first 12 hex rows.

Deep recce- Gather intel in the enemy's next 11-15 rows.

Tactical recce- Gathers intel over your own territory.

Also displayed is avionics (effectiveness in bad weather), survivability (susceptibility to enemy air superiority and anti-aircraft fire), readiness, and number of aircraft remaining. If the air campaign option is on, you can assign aircraft to missions as you see fit. During the battle phase you will be able to assign your strike missions to hit either enemy air bases, supply lines, or troop concentrations.

North Atlantic/Special Ops option is the only way to affect the North Atlantic campaign. This sub-campaign consists of three parts; at sea, Norway, and Iceland. While the outcomes profoundly affect the European campaign in terms of resupply and reinforcements of Nato from convoys, the only input you have to that campaign is the option to commit some of your airborne or marine reserves to Norway or Iceland. Otherwise, the airborne reserves can be airdropped into a central European hex, and the marines can be landed on any shore hex. The attrition and readiness level of these units as they land depends on whether they land in daytime or at night. Special Ops allows you to send special forces on missions to hit enemy airbases, stockpiles, reinforcements as they arrive, or gather intelligence. The Pact player also has additional option to use SSMS (surface to surface missiles) to strike these same targets.

Units are moved by entering the movement mode, selecting a unit, choosing either "maneuver" (to attack) or "move" from a dialog box, and then clicking on the hexes you wish to move to. Nato always moves second due to superior command and control allowing response to Pact moves. Since intelligence information on location of enemy units is revealed each time you move, you cannot take back a "move". A maneuver is a planned movement to be executed during combat and is the only way to attack an enemy occupied hex. Since no intelligence is revealed it can be taken back. An undocumented feature is the ability to click and drag units but, since moves cannot be taken back, it is not recommended. Each unit is allocated 12 movement pts/turn (10 if readiness<75%, 0 if not resupplied at beginning of turn and readiness <51%). Movement into a hex costs from 1-4 pts depending on the type of terrain, a maneuver (attack) costs 6 points, and bonus points can be charged on certain occasions (i.e. nighttime, bad weather, etc.). One point of readiness is lost for each movement point expended.

Once all movement is completed, battle begins starting with resolution of the air campaign. An alert box pops up showing the number of kills (inflated up to 20% to simulate uncertainty of reports), the number of airstrikes assigned, and the ground support allocated by each side. You are then prompted to direct strikes at targets you choose, either airbases, supply lines, or troop concentrations. After each selection you are notified if the strike was successful and, if troop concentrations were selected, which units were hit and if they were destroyed.

The air campaign is followed by ground combat. Battles are resolved where maneuvers have been ordered into enemy occupied hexes. Battle occurs in 3 phases; artillery, non-artillery, and resolution-withdrawal-advance. In the artillery phase the artillery strength of the attacking unit is added to enemy close air support and ranged artillery support. Ranged support is received from all HQ and artillery units in the same corps within 2 hexes (if they are not involved in maneuvers of their own) and consists of 1/2 of their combined artillery and non-artillery support. This total artillery support is multiplied by a factor of 1.0 to 1.4 (depending on weather) if chemical weapons are allowed and the attacker is

the U.S, France, or the Soviet Union. This final artillery strength is then applied to the survivability of the enemy sub-units being attacked (half that strength is applied to units that provided ranged support) and a loss ratio is generated. This loss ratio represents the fraction of each enemy sub-unit that must check for survival and takes into account terrain, readiness, deployment status, equipment survivabilities, and whether the defender was static (dug-in) or moving. The loss ratio is also the fraction of affected equipment in surviving units that is given a saving throw (similar to D&D) based on survivability to avoid elimination.

In the second battle phase another loss ratio is generated in a similar fashion with the non-artillery strengths of just the attacking and defending units. In the last phase both loss ratios are displayed and units and equipment are checked for elimination. Defending units that survive have a chance of retreating equal to the non artillery loss ratio. If a unit attempts to retreat and has nowhere to go, it will suffer an additional 5% equipment and readiness loss. If a defender retreats and one of the attackers sub-units is deployed as a reserve, it has a % chance to advance equal to it's own readiness status. Finally, the readiness of units in combat is decreased based on deployment status and weather (if chemical weapons are used).

An end of game test after each turn determines whether an alliance has collapsed. Otherwise, the game continues a specified number of turns (20 or 60) and the final victory level (Pact morale- Nato morale) determines win, lose, or draw. Alliance morale is based on the number of hexes controlled and the morale of countries in the alliance. Country morale is based on cities lost, troops lost, and the status of the North atlantic campaign. If a country's morale drops to 0%, there is a 50/50 chance that it will conclude a separate peace and become neutral in which case all troops and aircraft are withdrawn from the alliance. If the U.S, West Germany, or Soviet Union concludes a separate peace, the game is over. Finally, you are given the option to save the game just prior to starting each turn. This is the only time you are allowed to save, so be sure you plan to finish the next round if you don't save at this time.

Overall, I found RL to be an outstanding strategy game because I like a game with realism and detail, and it's chock full of both. The armies and equipment involved are modelled after precisely what exists in Europe at this time. Included on the disk is a 66K ascii text file of the order of battle which lists all of the armies and their sub-divisions (brigades, divisions, etc.) and what equipment is in each. The realism is further enhanced by the fact that the resolution of all battles is determined entirely by the relative strengths and weaknesses of the units involved, and the conditions under which they meet. Nothing is left to chance except the final check as to whether each individual piece of equipment bites the dust. In fact, the games is so realistic, it gives the player an insight as to why Nato is so concerned with Soviet Bloc troop strengths (in the real world) and why maneuvers near borders make Nato commanders nervous (and vice versa). As is suggested in the docs, the Nato player soon finds the best way to go is to attempt a holding action and rely on air superiority to weaken the Pact, while the Pact player learns that an all out blitz with it's superior ground forces is the best way to win.

The only problems I found with RL were minor ones, having to do with the user interface for absorbing all the information at my disposal. Even after I became familiar with it, it took around 30 minutes for each turn, most of which was assimilating the info available and making my moves based on that info. Specifically,

1. All similar types of units look exactly the same and must be clicked on to find out (via a yellow flag) which other units were in the same corps so that I could plan stacking and ranged support.

2. To find out the strength of a unit in order to plan where to move it you must exit the move mode and go to full hex info mode, then go back to the move mode once more. This entails 7 clicks each time, and soon adds up to a lot of time.

3. If you find an extremely weak unit while cycling through the units in the full hex info mode, you cannot exit to that unit on the tactical map. You must write down the hex number and then go find it.

4. The tactical map can only be scrolled using the set of triangles arranged vertically in the upper right corner of the screen. It would be much nicer if it would scroll whenever the mouse reached the edge of the screen as is done in many other programs.

5. Each time a unit is selected to be "moved" the screen jumps to center on that unit. Not only is this disorienting, it often causes you to lose track of the point you are aiming for, requiring you to quit that unit's movement and scroll the map in order to see which highway is the right way to go, then go back and move it.

6. No information on enemy units is provided at all except the type of unit (division, brigade, etc.). This makes it tough to decide which unit to attack since you can't tell if it is the one you've been attacking, or a fresh one that just reached the front.

I'm happy to report that, after some extended phone discussions with the designer, numbers 3 and 6 above have gone away, and the rest are being seriously considered. (Memory is the primary concern since SSI wants each program to be able to run on any ST with any version of TOS). So in version 1.1 the full hex report will exit to the last unit shown, and enemy units adjacent to friendly hexes will be identified by name. However, since SSI also has the policy "if it ain't broke, don't fix it", version 1.1 won't be released unless bugs are found in 1.0. I never thought I'd be sorry to see a program released bug-free, but so far none have been found and believe me, I've tried. So if you like wargames or have had an interest in them but never got around to it, or if you like strategy games with lots of detail, this game will capture and hold your attention.

As a side note, I sent Norm (who lives in an area of Texas without any access nodes for Genie, CIS, etc.) a thread from Genie with some speculation that SSI would no longer be bringing out any wargames for the ST, and he sent me the following reply:

"You will continue to see new stuff for the ST from me at least. The ST happens to be my favorite machine, largely because of the GEM features everybody seems to think I'm not using. It is too early to tell with Red Lightning, but Crusade sold one ST copy for every two IBM copies. That's hardly a "dead market". The problem with producing new titles for the ST is that it is a complicated machine to program properly. Ditto the Amiga. The return on time (=\$\$\$) invested is smaller with these machines than it is for IBM clones. Nobody really wants ports of 8 bit games. I predict that there will continue to be a steady flow of new titles for the ST (and Amiga) because there are programmers who just happen to like these machines. But you can't realistically expect that those who don't already have some commitment to the ST will spend time that they can more profitably spend programming for the pc market. "

> IS IT PIRACY? STR Featureâ €
=====

The Left Brain
=====

by Tim Holt

A few months back, one of the big cheeses, GILMAN LOUIE - CEO, at Spectrum Holobyte wrote an open letter to all Atari ST and Mega users. In it, he explained how much it costs to produce a quality program, and how much a company has to make in order to break even with a program.

He lamented that Falcon, his company's excellent flight simulator, was the victim once again of pirates, who, for lack of better things to do, broke the copy protection, and had his game up on pirate boards a mere six days after it's release. His point was well made and obviously well thought out. (They must hire college graduates at that company) He claimed that the ST version of Falcon was not selling as well as the Amiga version, and that this lack of sales was obviously due to the pirates. If everybody has a free copy, they wouldn't want to go out and buy the real McCoy for \$50. He made the threat that SH was not going to make any more programs for the ST if all we did was pirate the programs.

(Before I get on my soapbox, let me say right here and now, that piracy is bad news. I doubt if ANY user would argue that piracy hurts sales. I have always said, if you see a program you like, then buy it.)

And now, on to the soapbox....

I have no doubt that a company loses money from piracy. If it ain't being sold, it ain't making money. Unfortunately, no matter what business you are in, you are going to have theft. There will always be folks that forgot to read the Ten Commandments when they were kids. BUT THAT IS BUSINESS!! Any business must be prepared for theft. If someone gets caught shoplifting at Walmart, Walmart calls the police, and the person goes to jail. The same must be true for computer software companies. They must have some type of policy for what happens when someone "cracks" a program. If you were a company, and someone steals your program, why the hell wouldn't you prosecute the person or persons responsible?

Well, some might say "It's too expensive to prosecute these people." I say horse poop. If you believe that you have lost a quarter million dollars in sales, then you should be willing to spend a quarter million in legal fees. I found it interesting that Spectrum Holobyte was able to access a pirate board, but unwilling to go after it's owner. Give me a break! It is a Federal offense to have a pirate board. Surely SH could get the help of the FBI. Surely if they felt strongly enough about the

problem to write to every darn computer magazine in the US about how the stupid Atari users ruined their livelihoods, then they should have felt strongly enough to go after the pirates that were spreading the cracked programs. Even if it IS too expensive for one company to go to court, I am certain that there were other companies' programs on the board. A consortium of companies could easily amass the money needed to shut down the pirate boards and put the pirates away.

Others might say, "Well, it's like trying to empty the ocean with a teaspoon. It is useless because another one will pop up as soon as one gets closed." Wrong-o. The pirate boards have caller lists, the phone companies have records of long distance calls, and it really wouldn't be too hard to find out who is calling whom. Don't give the punks any warning, go in, seize the equipment, and find out who the pirates in the US are. If the same phone number turns up on every darn board that is seized, then by god, you have found a pirate. If you do that enough times, then somebody is gonna get the message that the party is over.

These companies that cry the loudest have shed crocodile tears as far as I am concerned. If they would throw down the gauntlet and stop crying, put their money where their mouths are, then I might believe their stories. Put up or shut up! I doubt if any decent Atari user or user group would feel sorry for a pirate and his board getting sent up the river for 10 years.

There must also be a consensus about what piracy really is. If I go to Sound Warehouse, buy an album, and then go and make a couple of cassettes of it for my friends, then I am a pirate, right? On the other hand, if I record the SAME songs off the radio, I am not a pirate...hmmm. (If that is so, then may I submit that almost everyone in the US is a pirate.) If I go to Movie Madness and rent a videotape, and copy it, then I am a pirate, right? But if I copy the movie off of CBS, or NBC, then I am not a pirate.. Then I say again, most people are involved in piracy. If I buy a program, make a backup copy, and loan it to my friend, and he makes a copy of the copy, then I am again involved in piracy.

Who among us can truthfully say we don't have a copied program? Would you consider yourselves PIRATES? Well, by definition you are, if you have ONE un-bought, non pd program...hmm. That doesn't really seem right. The industry must go after those folks that spread programs to hundreds of users, not those folks that make an occasional backup copy. The policy must be industry wide, not just one company here, and one company there. Once pirates see that there is a consensus among companies, then I believe the pirating will slow down.

Finally, I have something to say to those good folks at Spectrum Holobyte: _By writing your letter to every damn computer magazine in the US, you have caused a bit of a bad feelings between us and you. We know that there is a pirate problem, but it isn't JUST AN ATARI USER PROBLEM! I find it impossible to think that only Atari programs are pirated to the extent that causes your company financial harm. We are just now beginning to be taken as a serious computer, and your letter has done nothing but have the rest of the computer world snicker at us.

Yep, those stupid Atari users..when will they ever learn?

Atari: Piracy Without the Price!

I continue to hear these comments, or some form thereof. Incorrectly, and I am sure unintentionally, you have given us another mark on our

reputation.

As a teacher, I have yet to see an original copy of the Apple II-e program "Appleworks". I have yet to see an original copy of "Printshop". Don't blame the Atari users. A teacher buying one program and spreading it around to every teacher in a school, or a corporate type buying one database program and having the whole office use it is just as much a pirate as some hacker on a pirate board. Of course it wouldn't look good if the headline read "Software company puts first grade teacher in slammer!" would it?

Personally, I have not seen ONE pirated version of FALCON, and I have looked! I also was personally insulted when your company spokespersons intimated that you would look long and hard at making another Atari program. Making threats at those who have bought your program won't solve the problems, bub. Only by going in and trashing the pirate boards and the punks that run them, will you make a difference. Falcon has been the best selling Atari program for months now, selling well enough for you to come up with an update, and a new mission disk. (I got my order form in the mail last week.) It wasn't the pirates that gave you guys enough money to create the update and mission disks. It wasn't the pirates that have made your program the best seller that it is. It was us, the average Joe Blow user. Please remember US, next time you call US all pirates.

Tim Holt
President
ST Club of El Paso

Editor Note:

The point that Mr. Holt brings up about the ST Computer Community being somewhat upset is the very same point brought out during a recent SH online conference where Mr. Louie was asked about this lumping of all Atari users into a "less than desirable" piracy infested computer group. He stated, (Mr. Louie), that a letter would be forthcoming that would further explain SH's position and indeed alleviate the BAD BLOOD generated by the labelling of "all" Atari ST users as pirates. He further stated that the letter would be forwarded to all the same people who received the first letter. Has anyone seen or heard of this second letter???

Both myself and an STReport staff member, Neil Bradley, were in attendance that night. In fact, we were very pleased at Mr. Louie's positive reaction to the entire matter and felt that it too, was an excellent indication of the future for the ST.

> ATARI FEST STR FOCUSâ €
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Sheraton Lakeview Hotel
Clarksville, Indiana (Louisville, Ky.)
October 28 - October 29, 1989

The Kentuckiana Atari Fest '89 will be held on the weekend of October 28th and 29th, 1989, at the Sheraton Lakeview Hotel in Clarksville, In., which is located 1 mile from Louisville, Ky.

Atari Corp. is expected to attend this event, and we have tentative commitments from ICD, Mastertronics, Innovative Concepts, and other Atari dealers and developers, for attendance and/or participation at the show or with the related events of the show.

We will also have seminars and conferences on Atari related products and information, including a users group forum with representatives from users groups across the nation attending.

A special package deal has been set up for this convention, with the package including 2 nights at the Sheraton Lakeview hotel, and 4 meals (breakfast and dinner) daily for 1 person. The room is a single or double bed room with a 1-4 person occupancy. Additional meal packages, and optional lunches will also be available for this event.

We hope to make this an annual affair, but it will require your help and support to pull it off.

I hope to see you there, and thank you for your support.

Sincerely,
Lawrence R. Estep
Convention Coordinator

Kentuckiana Atari Fest '89
October 28 and 29, 1989

Sheraton Lakeview Hotel
Clarksville, Indiana
(1 mile from Louisville, Ky.)

Calendar Of Events as of 07/26/89

Saturday October 28

Breakfast Buffet	9:30 A.M.	Convention Opens	11:00 A.M.
Optional Lunch Buffet	1:00 P.M.	Convention Closes	5:30 P.M.
Formal Dinner	(Roast Beef or Turkey w/dressing)		7:00 P.M.

Sunday October 29

Breakfast Buffet	9:00 A.M.	Convention Opens	10:30 A.M.
Optional Lunch Buffet	12:30 P.M.	Convention Closes	4:00 P.M.
Dinner Buffet	(Country Fried Chicken)		6:00 P.M.

SPECIAL PACKAGE OFFERS

2 nights w/1 meal package	\$159.95
2 nights w/2 meal packages	\$199.95

Lawrence R. Estep 07/27/89

> PRICE CLUB STR FOCUSâ € A "NEW" type of "MARKETING SCHEME"??
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Each Price Club store is to get six 520's. It is thought that this is a way for Atari to blowout the remaining 520's, and discontinue them, thus, making the 1040 the bottom of the line.

Time to raise a Red flag??? Brought to you by the guy who foretold that the Federated Electronics purchase was bad news; and the guy who got chewed out by Niel Harris for saying Atari has lost \$63 million because of them. (It later turns out that they lost \$124 million from Federated, last year.)

Of real concern at this time, is that the Dept. of Commerce wants to relax export restrictions on small computers going to East European countries. The news media is busy talking about all the XT's that the Communists will buy, while we know what computer the Russians have been buying, when they can get their hands on it! Remember, it was Chess Grandmaster Kasparov, who gave a British ST magazine an interview on the impact of the ST in the USSR. ..(he owns one, bought in Berlin).

If a whole new, possibly large market is going to open up, you can bet that Uncle Jack will decide to let the US market go to hell. Better get an import license if you plan to continue to sell ST products.

Editor Note:

The above passage was composed by one of the most caring of Atari users/dealers/developers we have come to know. In the past we have rarely, if ever, seen this man very far off the mark. Therefore, we must pass on this valued information...

Oddly enough though, the 520 computers that are being offered for sale at the Price Club have a "new" name and category ... "520 GAME MACHINE"!! Whomever came up with this scheme should go the same route as the rest of the candidates for the "revolving door"! The tragedy here is simple, Atari and the userbase have, for WELL over a year, worked diligently at every corner to turn the "game machine" image away from the ST!! What does some marketing "genius" do? ..

> PC PILOTâ € STReport InfoFileâ €
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PC PILOTâ € MAKES DEBUT
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NEW MAGAZINE TARGETS SIMULATOR PILOTS

NEW YORK: May 22--A new magazine for computer pilots will make its debut this summer.

PC PILOT, a monthly publication aimed at the more than two million users of personal computer flight simulation programs, "will cover the whole range and depth of computer flying, on all computers in all formats," says publisher Marc Robins. "We're going to be the 'Flying' magazine for people who fly their computers. Computer flying is more than just gaming--it's a comprehensive hobby in its own right," Robins says.

"We'll provide the same quality of information about flying that you'd find in an aviation magazine," says editor-in-chief; Alan G. Ampolsk. "We'll report on all the available software, and we'll also cover control yokes, joysticks, graphics cards, sound boards, monitors, and complete computer systems--all the hardware you need to be a top-flight simulator pilot."

Among PC PILOT's standing columns will be "Techniques, about civilian flying, and "Tactics," about air combat maneuvering. Richard G. Sheffield, author of "Jet Fighter School" and "Jet Fighter School II" will write the Tactics column. Charles Gulick, author of six books about Flight Simulator(, will contribute a column entitled "Crosswinds." "The Real Stuff," a regular section of the magazine, will keep readers abreast of developments in real-world aviation.

PC PILOT is published by Computer Aviation Inter-national, Inc., a new company providing group purchasing discounts, special publications and additional services and information to simulator flyers in the US and abroad.

A year's subscription to PC PILOT, at a price of \$30, includes enrollment in CAI's discounting programs. Charter subscribers will receive a free Japan Scenery Disk for Flight Simulator as a membership bonus. "That's typical of the benefits we plan to provide our subscribers," Robins says.

For information, or to subscribe, write to:

PC PILOT
PO Box 6175
Champaign, IL. 61821-6175

Flight Simulator is a registered trademark of Sublogic Corporation.

> ST REPORT CONFIDENTIALâ €
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- Sunnyvale, CA. ***** USERS TO SEE INTENSE ADVERTISING *****

Atari's "NEW" image will be nothing short of spectacular! Outstanding commercials and tabloid ads are superbly done. The new ad agency, creators of the highly successful Apple campaign, is well on it's way to making the Atari Computer an easily recognizable and readily accepted name in the computing community. The advertising releases are being coordinated with the appearances of Atari's new products. The ultimate showings and debuts should be remarkable.

- Houston TX. *** DEVELOPER RETURNS 16MHZ UPGRADE TO MANUFCTR! ***

It appears that all is not well in high speed land, seems that a development group in Texas recently returned their 16mhz upgrade to it's "maker" and stated it was unusable. The developer stated that "although repeated efforts were made to install this goodie, it never flew! So, we shipped it back to the west coast."

> WOA DALLAS STR FOCUSâ €
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WORLD OF ATARI SHOW -> DALLAS TEXAS
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World of Atari
Dallas Texas

August 19, & 20 1989

WORLD OF ATARI will be held at the Holiday Inn Holidome, Irving Texas on Aug. 19 and 20th. The hours of the show are 10 am till 6pm on Saturday, the 19th and on Sunday; 10am till 5pm. Admission is 5.00 per day or 7.00 for both days. Advance discount tickets are available directly from ST World for User Groups. Usergroup member ticket prices

are 3.50 for a single day and 5.25 for both days of the show. The tickets must be ordered no later than August 10, 1989. Admission at the door will be at regular price with no discount.

Atari Corporation will feature their full line of products, from the 2600 game machine to the Mega Computer systems. In addition, the pc Portfolio, the Lynx (New Handheld Game system), and the Stacy laptop.

Of course many of the companies we are all familiar with will be displaying their latest products and some will be offering appreciable discounts as introductory offers to the users. Prospero Software will be offering a 25% discount as an introductory offer on their products.

Also scheduled are instruction seminars designed to appeal to the new, as well as, the experienced user.

Companies we are all familiar with who will be there to answer your questions and provide help.

Abacus Software	Alpha Systems
Best Electronics	Codehead Software
Double Click Software	FAST TECHNOLOGY
ICD Inc. 8 & 16 bit	Intersect Software
Imagen Corporation	Megabyte Computers
Megamax Inc.	MichTron
Migraph Inc.	Precision Software
Prospero Software	Reeve Software
Seymor/Radix	Softrek Marketing

plus many more...

> Atari Stock ~ STReportâ €
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THE TICKERTAPE
=====

by Glenn Gorman

Atari Stock dropped 1/8 of a point on Wednesday, up 1/8 on Thursday and down 1/8 on Friday. Finishing up the week at 7 7/8 points. Down 1/8 points from last Friday.

Glenn Gorman

+-----+					
ATARI STOCK WATCH					
Week 07-17 to 07-21					
=====+	=====+	=====+	=====+	=====+	=====+
	Monday	Tuesday	Wednesday	Thursday	Friday
-----+	-----+	-----+	-----+	-----+	-----+
Sales	323	426	1084	334	279
-----+	-----+	-----+	-----+	-----+	-----+
Last	8 ---	8 ---	7 7/8	8 ---	7 7/8
-----+	-----+	-----+	-----+	-----+	-----+
Chg.	----	----	-1/8	+1/8	-1/8
=====+	=====+	=====+	=====+	=====+	=====+
From > THE CAVE ST BBS <> 609-882-9195 <> 300/14400 HST <> F-NET #351					
+-----+					

> A "Quotable Quote"â ¢
=====

"Judgement comes from experience
...Experience comes from poor judgement!"

"ATARI IS BACK!"

ST-REPORTâ ¢ Issue #98 "Your Independent News Source" July 28, 1989
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